Addressing Obesity and Diabetes Among African American Men: Examination of a Community-Based Model of Prevention

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INTRODUCTION

African Americans face significant health challenges and disparities relative to other ethnic groups in the United States. Limited access and utilization of health care services place an immense burden on the social and economic realities that are central to their existence and ability to thrive in society. The overwhelming incidence among African Americans of preventable chronic diseases such as diabetes, stroke, heart disease, and cancer not only contributes to high morbidity and mortality rates but also threatens the survival of healthy families. In nearly all measures and indicators of health, African Americans lag behind their white counterparts.2 In a study on racial and ethnic disparities, it was suggested that African Americans overall suffered 40.5% more deaths that year than would have been expected if they were Caucasian. Furthermore, African American men are particularly at risk and have significantly lower life expectancy: 66.1 years, compared to the national average of 73.6 years for all men, and suffer disproportionately from the effects of chronic disease more than any other group.

Additionally, among some African American men, high rates of incarceration, unemployment, and low levels of college graduation rates negatively affect their quality of life as well as access to health care insurance coverage and quality health care. Consequently, it is crucial that careful attention be provided to heightening awareness of the prevalence and predictors of chronic diseases among African American men, such as obesity

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The Save Our Sons study is a community-based, culturally responsive, and gender-specific intervention aimed at reducing obesity and diabetes among a small sample (n = 42) of African American men. The goals of the study were to: (1) test the feasibility of implementing a group health education and intervention model to reduce the incidence of diabetes and obesity among African American men; (2) improve regular access to and utilization of health care services and community supportive resources to promote healthy lifestyles among African American men; and (3) build community networks and capacity for advocacy and addressing some of the health needs of African American men residing in Lorain County, Ohio. Trained community health workers facilitated activities to achieve program aims. Following the 6-week intervention, results indicated that participant’s had greater knowledge about strategies for prevention and management of obesity and diabetes; increased engagement in exercise and fitness activities; decreased blood pressure, weight, and body mass index levels; and visited a primary care doctor more frequently. Also, local residents elevated African American men’s health and identified it as a priority in their community. This model of prevention appears to be a substantial, robust, and replicable approach for improving the health and well-being of African American men.

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and diabetes, and the myriad of social determinants that relate to their access and utilization of comprehensive health services.

Diabetes and African American Men

In the United States, diabetes is one of the leading causes of death affecting nearly 8% of the entire population. The American Diabetes Association reported that, compared to the general population, African Americans are disproportionately affected by diabetes, and approximately 3.7 million, or 14.7%, of all African Americans aged 20 years or older have diabetes; and African Americans are 1.6 times more likely to have diabetes as non-Hispanic whites. The Centers for Disease Control and Prevention (CDC, Atlanta, Georgia) has indicated that from 1980 through 2005, the age-adjusted prevalence of diagnosed diabetes has doubled among black males. Similarly, data from studies of nationally representative samples indicate that, compared with their white counterparts, African American men are 20% to 50% more likely to have6 or to develop diabetes. According to a report issued by the Institute of Medicine, disproportionate variances in the rates of medical procedures by race, even when insurance status, income, age, and conditions are similar, suggested that minorities are less likely to receive treatments such as kidney dialysis but are more likely to receive lower-limb amputations in response to chronic problems associated with diabetes. Of the individuals diagnosed with type 2 diabetes, about 80% to 90% are also diagnosed as obese; and understanding issues such as overweight and obesity that can contribute to the disease will aid in diabetes prevention efforts.

Research has indicated that being overweight places extra stress on the body in a variety of ways, including the body’s ability to maintain proper blood glucose levels and can cause the body to become resistant to insulin. If an individual had already been diagnosed with diabetes, then they may need to take even more insulin to get sugar into their cells. And if an individual does not have diabetes but may be at risk because of obesity, the prolonged effects of the insulin resistance can eventually cause them to develop the disease.

Immediate attention and action is required to address the specific health needs of African American men, particularly as they relate to prevention of obesity and diabetes. There is a dire need for targeted prevention efforts and culturally tailored and gender-specific intervention strategies with the aim of successfully addressing the myriad of issues encountered by this vulnerable population. Therefore, we developed, implemented, and evaluated a community-based model of prevention for obesity and diabetes entitled Save Our Sons (SOS).

Few systematic community-based interventions exist that focus on improving the health and lives of African American men and boys. The goals of the SOS study were to: (1) test the feasibility of implementing a group health education and intervention model to reduce the incidence of diabetes and obesity among African American men; (2) improve regular access to and utilization of health care services and community supportive resources to promote healthy lifestyles among African-American men; and (3) build community capacity for advocacy and addressing some of the health needs of African American men residing in Lorain County, Ohio. This project demonstrated an innovative approach to changing health beliefs and behavior, building social networks, and improving the community environment relative to prioritizing health for African American men. This pilot study contributed to strategies that may be helpful in developing a health care system that has appropriate entry points, health education, and training for all, particularly those with the greatest health disparities, such as African Americans.

METHODS

Setting

The SOS study was conducted in Lorain County (cities of Elyria, Lorain, and Oberlin), Ohio. African Americans make up 12% (1376030) of Ohio’s total population, but African American men account for 25% of all Ohio residents who are uninsured. Lorain County has a total population of 302,260 residents, of which 8% (24,180) are African American. The Ohio Department of Health, Center for Vital Health Stats, reported that the leading causes of death (ranked from highest to lowest) are the following: cancer, heart disease, chronic lower respiratory disease, stroke, diabetes, and unintentional injury. However, among African American men in Lorain County, diabetes and obesity were reported as the most prevalent health problem afflicting underserved African-American men and therefore further substantiated the focus areas of this study. It was extremely difficult to locate existing health-related data specifically concerning African American men; however, this study attempted to add to the dearth of information and data for the Lorain County community. The Lorain County Urban League (LCUL), an affiliate of the National Urban League (NUL), which is the nation’s oldest and largest community-based movement dedicated to empowering African Americans, was the central venue for implementation of project activities.

Participants

A nonprobability sample of adult African American men that reside in Lorain County, Ohio, were targeted for recruitment in the study. Project participants included 42 adult men that were at risk for and/or diagnosed with diabetes and/or were in poor health that may be related to obesity and/or other health concerns. We did not exclude individuals based on preexisting health conditions, lack of health insurance, or specific income or
Procedures

Prior to commencing the intervention phase of SOS, our evaluation team conducted project start-up activities in order to determine strategies that may aid in recruitment and retention of participants and bolster the potential for overall project success. These activities included: (1) facilitation of 2 focus groups with various age ranges of African American men; and (2) conduct of key informant interviews with staff from local agencies, organizations, and city council members that indicated interest in collaboration with SOS. The focus group discussion guide queried African American men to get a sense of their knowledge, beliefs, and attitudes about adopting healthy lifestyles; perceptions about primary health care; and information that may encourage participation in a culturally centered diabetes prevention program. Focus group findings yielded important results that helped inform the development of the SOS intervention that identified strategies for recruitment and retention of participants, and clarified approaches that may increase African American men’s help-seeking behaviors for comprehensive health care. Based on focus group findings, many psychosocial, economic, and environmental issues were identified as significant contributors to challenges in navigating through the health care systems in Lorain County and to adopting healthier lifestyles that could assist with the prevention of diabetes. Overall findings indicated that the use of a curriculum developed specifically for African Americans combined with the use of community health workers who are from the targeted neighborhood would add a new dimension to the program and establish trust among participants. The key informant interviews centered on topics concerning program infrastructure, community collaboration and capacity building, and approaches for informing health policies to address strategies for enrolling participants in a health care home with the goal of preventing and reducing health disparities within the Lorain County community. A waiver/signed release was obtained from program participants indicating support of using their information/data for research purposes. Overall findings from the key informant interviews showed the importance of using appropriate incentives such as transportation vouchers, flexible class times, and access to social support services (ie, job placement assistance would be necessary to recruit and retain participants).

Community health workers, also known as promoto- ras, lay health workers, or community health advisors, are trusted members of their communities that provide community-based health and education services and vital links between health systems and communities.11

Assessment Tools

Preintervention and postintervention health-related data of participants (ie, weight, glucose levels, body mass index [BMI], and blood pressure) were gathered by registered nurses from a collaborating local hospital. Program staff and community health workers also collected background information (ie, age, ethnicity, health insurance coverage status, educational attainment, household income, and family history of diabetes). Questionnaires were administered by the community health workers concerning the SOS curriculum and participants’ frequency of visits to a primary care doctor to address health concerns. All of these measures were developed by the SOS program evaluators with input from local LCUL program staff.

Specifically, all participants were given a 20-question pretest and posttest to examine their knowledge on the curriculum material, and to measure the effectiveness of the program. The questionnaire covered the following topics:

- blood glucose effect of diabetes
- symptoms of type 2 diabetes
- diabetes risks and complications
- disease progression
- diabetes prevention and risk reduction methods
- nutrition and blood glucose control (eg, carbohydrate choices and stress-related eating)
- importance of physical activity and exercise levels
- importance of having a regular doctor
- A1C and recommended levels
- social aspects of diabetes
Overview of Community Based Intervention

The SOS community-based intervention included 3 primary components: (1) a culturally tailored obesity and diabetes prevention curriculum that included 6 educational sessions (approximately 12 hours), which were modeled after the CDC's Power to Prevent Diabetes Curriculum;12 (2) a wide array of fitness activities (ie, swimming, tennis, boxing, basketball, power walking, etc), totaling approximately 150 hours of collective workout activities completed by all of the men during the intervention period and healthy eating and lifestyle demonstrations (approximately 30 hours); and (3) connecting participants to primary health care providers and other supportive community resources (eg, parks and recreational facilities, fitness facilities, health fairs). The 42 participants were divided into cohorts of 8 to 10 men and engaged in project activities facilitated by community health workers in various community settings.

The community health workers were charged with covering content areas of each 6 sessions of the curriculum. The original CDC curriculum was modified and tailored to be culturally sensitive and relatable to African American men. It was essential that the curriculum sessions entail healthy lifestyle information and strategies that would elicit responsiveness from African American men. An overview of the SOS 6 curriculum workshop sessions is below:

Session 1: Introduction to Save Our Sons, Diabetes, and African American Men’s Health
- Describe the goals of the SOS program.
- Demonstrate an understanding of diabetes.
- Explain why African American men are at risk for diabetes.
- Describe the major diabetes-related complications that can affect African Americans.

Session 2: Small Steps Lead to Big Rewards
- Demonstrate an understanding of diabetes prevention.
- Identify 50 small steps that can lead to big rewards.
- Demonstrate an understanding of how emotional health can have an effect on diabetes prevention.

Session 3: Strategies for Healthy Eating
- Describe the importance of eating healthy foods.
- Demonstrate an understanding of the kinds of foods that help prevent diabetes and the kinds of foods that can promote diabetes.
- Demonstrate an understanding of stress-related eating and how to overcome this.

Session 4: Physical Activity—Get Moving Today!
- Describe why being physically active is important for diabetes prevention.
- Describe the general benefits of physical activity.
- Show an understanding of the barriers and solutions to exercise.

Session 5: Partner With Your Health Care Provider
- Understand the importance of having a regular doctor.
- Learn how to find a doctor.
- Understand the importance of blood glucose screening.
- Describe what people with diabetes should know in terms of partnering with their health care providers.

Session 6: Celebrate Big Rewards
- Demonstrate how small steps have resulted in big rewards.
- Understand the connection between healthy eating/increased physical activity and weight loss.
- Demonstrate an overall understanding of the SOS program by completing the SOS quiz.

Intervention activities also included group exercise sessions, which encouraged participants to build supportive social networks and camaraderie among the men.

Data Analysis

Descriptive statistics were used to analyze all data for this study. For individual program participants, differences between preintervention and postintervention health outcomes (ie, weight, glucose levels, BMI levels,
blood pressure, cholesterol, etc), knowledge of approaches for prevention of obesity and diabetes relative to the SOS curriculum sessions, levels of exercise and engagement in fitness activities, enrollment in health insurance, and visits to primary care doctors were examined. Relative to programmatic areas, several key outcomes to measure the effectiveness of the program were evaluated.

RESULTS

Overview of Key Findings

Use of a single gender and culturally responsive model of prevention and intervention measures is critical for addressing health promotion and disease prevention for African American men.

Use of highly trained community health workers/coaches was important in the recruitment and retention of this hard-to-reach population.

Use of a family-centered support system to engage participants in engaging in healthier lifestyles includes visits to primary care doctors and other supportive community resources.

There is a need for stronger community infrastructure regarding health care services and community support for African American men.

Preintervention Participant Profile

The majority of the program participants live with very meager individual incomes. In fact, more than a quarter of participants receive less than $25000 in annual income, with the majority making less than $10000 per year. Twenty-five participants (nearly 60%) were uninsured at the start of the program, compared to 17 who had some form of health insurance. Of those who had insurance, the majority of them received it through their employers (14%), their spouse’s employer (7%), or through the Veteran’s Administration (7%). Of the uninsured participants, 14 were without health insurance for 0 to 4 years, 5 from 5 to 9 years, and 6 from 10 to 14 years (Figure 1).

Prior to the intervention, only 8 participants currently had a primary health care home and 5 participants currently had a dentist. For participants who reported being without current physicians, 19 participants (55.9%) had seen a physician within the last 2 years, 8 participants (23.5%) had seen a physician within the last 3 to 6 years, 5 participants (14.7%) had seen a physician within 7 to 10 years, and 2 participants (5.9%) had not seen a physician in more than 11 years. One participant (aged 42) reported having never visited a doctor prior to the program. Of those without dentists, 7 participants (18.9%) had seen a dentist within the last 2 years, 25 participants (73.5%) had seen a dentist within 3 to 6 years, 4 participants (10.8%) had seen a dentist within 7 to 10 years, and 1 participant (2.7%) had not seen a dentist at all (Figure 2). When asked at the start of the SOS program whether or not they had felt depressed or blue within the past 2 weeks, 74% of all participants

![Figure 2. Uninsured Participants’ Time Since Last Medical or Dental Interaction Prior to Program Intervention.](image-url)
indicated that they had, while 26% said they had not felt depressed. At baseline, only 12% of participants reported ever seeking help for depression, while 88% of participants had not sought help for depression. Out of the top 5 reasons participants initially gave for visiting the doctor, 31% of participants (n = 7) reported physical/check-up, 27% (n = 6) of visits were for blood pressure, 14% (n = 3) were for pain, 14% (n = 3) were for the flu, and 14% (n = 3) were for stomach concerns. Additional reasons cited for visiting the doctor included: chest pain (2), seizure (2), back pain (2), gout, trouble breathing, hand injury, dizziness, gall bladder, knee, dislocated shoulder, sciatic nerve, anterior cruciate ligament, weakness, fall, and an emergency.

Prior to participating in SOS, 59% of participants (n = 25) indicated their first choice for exercise activity was going to a fitness facility or gym. Twenty-four percent (n = 10) of participants’ first choice for exercise was basketball; 12% (n = 5) indicated swimming; 5% (n = 2) indicated walking; and no participants indicated tennis, golf, or jogging as a first-choice exercise inclination.

At the start of the intervention, 33% (n = 14) of participants reported no weekly exercise, and 38% (n = 16) of participants reported exercise levels of 1 to 3 hours per week. Twenty-two percent (n = 9) of participants reported exercising 4 to 6 hours per week, 5% (n = 2) reported 7 to 9 hours per week and 2% (n = 1) of participants exercised 10 to 12 hours per week. No participants reported 13 to 15 hours of weekly exercise (Figure 3).

Prior to the intervention, 50% of the participants were obese, as categorized by their BMI greater than 25, and 29% of participants were overweight by these standards. Nineteen percent of the participants were considered to be normal weight, while 2% of the participants were underweight (Figure 4). At baseline, 24% of participants had blood pressures within the normal range, while the majority of participants (50%) had prehypertensive blood pressure values in the range of 135/85 mm Hg. Of participants with hypertension, 17% were in stage 1 and 9% were in stage 2. Initial blood glucose readings indicated that 2% of participants had levels considered severe and 2% had levels designated as warning. Ninety-six percent of participants had normal blood glucose levels. At the beginning of the program, 7% of participants had high cholesterol and 19% had borderline high cholesterol levels. Seventy-four percent of the participants had desirable cholesterol levels.

### Postintervention Participant Profile

On the SOS curriculum pretest, 36% of the participants scored below 70%, and 26% of the participants’ scores were in the 70 to 79% range. In contrast, no participants scored below 80% on the posttest following participation in intervention activities. The largest improvement was in the 90% to 100% range, which increased from 12% on the pretest to 90% of scores on the posttest relative to improved knowledge about strategies for managing obesity and diabetes.

One of the major components of the intervention was to improve participants’ overall health by increasing the exercise activity levels of the participants. With feedback from the participants themselves, the LCUL developed a fitness calendar of events for participants to utilize throughout the week to make exercising more manageable with their already busy schedules. Fitness activities included working out at a fitness/gym facility, participating in a walking club, swimming, and playing basketball and tennis. The LCUL acquired gym memberships for the program participants who expressed interest in having access to a gym. The LCUL also invited professionals to present alternate fitness/stress relief activities such as yoga and meditation. The SOS program proved to be effective in increasing participants’ fitness levels. In fact, 98% of all participants...
After SOS program participation, men completing 1 to 3 hours of exercise per week decreased from 38% to 5%, while participation in the remaining exercise levels increased. For example, participants exercising 4 to 6 hours improved from 22% to 47%, 7 to 9 hours increased from 2% to 17%, 10 to 12 hours increased from 2% to 26%, and 13 to 15 hours increased from 0 to 5%. Also, participants’ choice of weekly exercise activities became more varied. Exercising in a fitness facility remained the activity with highest participation but decreased to 49% of the overall activity from 59% of the preliminary reported exercise inclinations. Swimming had the greatest increase in participation, from 12% of the first week’s exercise activity to 23% of the program’s overall fitness activity. Tennis and walking also saw increases in activity level, tennis from 0 to 10% and walking from 5% to 9%. The activity with the greatest decrease was basketball, which went from 24% the first week to 9% of the overall fitness activities. It is evident that African American men are open to participating in new exercise activities and should be given a variety of experiences. For example, some of the men expressed an interest in golf, an activity that the local urban league had originally thought would not be of interest to these inner-city men.

Over the course of the intervention, participants instituted lifestyle changes to improve their blood pressure, including increasing physical fitness and making healthier diet choices. These changes were beneficial, as participants’ blood pressure levels decreased by 23%. At the end of the program, hypertension among participants decreased from 27% to 4%; stage 2 of hypertension decreased from 10% to 2% and stage 1 decreased from 17% to 2%. The percent of prehypertensive participants shifted from 49% to 58%, while normal blood pressures increased from 24% to 38% of the participants.

Regarding weight loss, as a result of the changes in diet and exercise, the participants experienced successful weight loss. Overall, obesity and overweight status decreased by 7% following the 6 weeks SOS intervention. On average, participants lost approximately 2.54 kg during their participation in the SOS program. Post-SOS intervention, BMI scores indicated that obesity among participants decreased from 50% to 46%, and overweight decreased from 29% to 26%. The number of participants with a normal weight BMI increased from 19% at baseline to 26%.

Connection With Medical Homes/Primary Health Care Homes

At the start of the intervention, only 8 participants had medical homes. Due to the success of relationship building and engaging local health providers, specifically Community Health Partners, the Lorain County Free Clinic, and Lorain County Health and Dentistry, 29 participants were connected with medical homes, essentially more than tripling the number of participants with medical homes. LCUL is still working to ensure that all participants have a physician they can visit for both regular checkups and when health problems arise. Prior to the intervention, only 8 participants indicated having a regular physician. After the intervention, 29 participants had a primary care home. The SOS program contributed increased physician seeking behavior nearly 4-fold. Additionally, only 17 participants had health insurance at the start of the program, and by the end of SOS 27 men had secured health insurance coverage.

Figure 4. Comparison of preintervention and postintervention body mass index rates. Obesity and overweight status decreased by 7% during the 6-week intervention. On average, participants lost 2.54 kg during program.
DISCUSSION

The SOS community-based model of prevention of obesity and diabetes appears to be a substantial, robust, and replicable intervention for African American men. This study is significant because it demonstrates the validity for use of a single-gender and culturally responsive model of prevention that is critical to health promotion and disease prevention for African American men. This project further provided a trickle-down effect, in which men asserted leadership roles, particularly as fathers, by encouraging their family members to engage in healthier lifestyles, including visits to primary care doctors and other supportive community resources. Furthermore, based on comments from program participants, this program aided in the building of healthier African American families. During the 6-week intervention, participants dramatically improved their knowledge of curriculum topics, increased exercise levels (98% exceeded goal of 150 minutes per week), decreased obesity and overweight status by 7%, decreased hypertension by 23%, increased physician attainment 3-fold, increased health insurance enrollment by more than 58%. Ninety-five percent of program participants completed the intervention program. Overall, the community of Lorain County was mobilized around African American men’s health issues and is continuing to work towards efforts to achieve health equity and improve health outcomes for men of color as demonstrated by the 4-fold increased local media attention about African American men’s health. Equally significant was the camaraderie that developed among the participants, and this potentiated the ability of the men to serve in leadership roles in other activities and to be seen (some for the very first time in their lives) as resource persons for their families and for the community. The learners became the teachers. This is based on comments provided by program participants and observations indicated by community health workers and program staff.

Some of the challenges identified within the community that related to barriers to addressing men’s health issues included: access to accurate health data/information, high rates of uninsured African American men, limited access to free/low-cost medical care, few community outreach programs, limited funding for education and medical services, poor strategies for reaching African American men, limited access and utilization of transportation services, limited outreach in underserved communities, and limited funding targeted specifically for men’s health.

Appropriate selection of outreach workers that are dedicated to fully immersing themselves into the structure of the program appeared to be an important component that aided in program successes. There is a need to elevate the status of community health workers, such that their work is viewed as an integral part of facilitating access to and providing health care so that they become a part of the paid staff of the health care system. For this project, the training, quality, professionalism, and commitment of the community health workers that worked with program participants had an instrumental impact on the high rates of retention and engagement of participants with project activities.

Future directions include the need to further establish and refine community collaboration building and partnership development activities with local organizations and agencies to support health promotion and disease prevention targeted to African American men. There is need for local communities to take ownership and prioritize the issues regarding African American men’s health. It was also necessary for the communities to share resources to facilitate transportation, as public transportation did not support transfer to meetings or exercise sites needed to be provided. Church vans and vehicles from other organizations were made available as a result of program staff and community health worker outreach for this support. Veteran’s Affairs was not engaged as a provider in this pilot but would be in future events to address unique needs (ie, eye care) of veterans, as identified by the number of veterans present that were identified in the present study.

To aid in advocacy, informing local, state, and national health policy initiatives of programs that promote health and wellness for underserved populations is essential. We encouraged the development and dissemination of user-friendly and culturally sensitive health messaging materials targeted to African American men regarding health issues, so that it can benefit their interest in seeking primary health care and engaging in positive and healthy lifestyle choices. Additional funding for program sustainability and to elevate support for increasing the number of men to participate in community based programs is paramount. Equally paramount was the need for the community workers not just to teach and encourage but also to participate as peers with the participants, thereby establishing rapport between health
care providers and participants. Providing appropriate mechanisms for program support allows for the development, implementation, and evaluation of community-based projects that can profoundly impact health outcomes of its members.

REFERENCES